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EPA Region 5 Records Ctr.



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STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND/NOISE POLLUTION CONTROL

GROUNDWATER WITHDRAWALS FROM
AQUIFERS IN ILLINOIS
WITH EMPHASIS ON
PWS WELLS

by
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1981

AQUIFERS OF ILLINOIS

Subsequent to consultation with the ISGS and ISWS, the IEPA identified the aquifers in Illinois. These aquifers are shown in descending order in Table B.

Table B. Aquifers of Illinois

| Name of aquifers (abbreviation) | | General lithology |
|---------------------------------|---------|-------------------------------------|
| Quaternary | (Q) | Sands and gravels** |
| Cretaceous-Tertiary | (K-T) | Sands and gravels** |
| Pennsylvanian | (Pen) | Sandstones, limestones, and coals** |
| Chesterian | (MCh) | Sandstones and limestones** |
| Valmeyeran | (MVa) | Sandstones and limestones |
| Silurian-Devonian | (S-D) | Dolomites and limestones |
| *Maquoketa | (Maq) | Dolomites and fractured shales** |
| Galena-Platteville | (G-P) | Dolomites and limestones |
| Glenwood-St. Peter | (G-StP) | Sandstones |
| *Prairie du Chien | (PduC) | Dolomites and sandstones |
| Eminence-Potosi | (E-P) | Dolomites |
| *Franconia | (F) | Sandy dolomites |
| Ironton-Galesville | (I-G) | Sandstones |
| Elmhurst-Mt. Simon | (E-MtS) | Sandstones |

* Considered of minor importance, refer to text for details

**Rock types listed may be water yielding but generally make up less than half of the total rock thickness in the indicated units.

Properties of these aquifers are briefly described under the heading "Description of Aquifers Utilized by PWS Wells". Their detailed discussion are included in another report entitled "Aquifers of Illinois: Underground Sources of Drinking Water and Non-Drinking Water" by Student et al. (1981). Some of these aquifers are hydrologically connected and are identified as hydrostratigraphic units in parts of the State. One of the best known hydrostratigraphic units in northern Illinois is the Cambrian-Ordovician aquifer which consists of the Ironton-Galesville, Franconia, Eminence-Potosi, Prairie du Chien, Glenwood-St. Peter, and the Galena-Platteville. However, the IEPA has elected to retain individual aquifer designations due to variations in aquifer properties over a statewide basis. The wells in various use categories primarily obtain water from either the individual aquifers in Table B or any combination of them.

As indicated in Table B, three of these aquifers, the Maquoketa, Prairie du Chien, and Franconia are of "minor" importance. In the case of the Maquoketa, lithologic variations from fractured limestone, dolomite, and shales to a predominate shale group, cause a reduction of water yielding capability. Indeed, over a larger portion of Illinois, the Maquoketa is more often considered an aquitard or a confining bed rather than an aquifer. The Prairie du Chien and the Franconia are usually left open to multiple aquifer wells which penetrate to deeper sandstone aquifers. Their respective yields relative to the deeper aquifers, such the Ironton-Galesville and the Elmhurst-Mt. Simon, are of lesser quantities.

The reported well depths and yields vary from 190 to 1,640 feet, and from 33 to 2,900 gpm (Table 8). Group I PWS facilities through 36 wells withdraw 5.8 mgd of water from this aquifer (Table 14A).

Galena-Platteville: The upper part of the aquifer is known to be the most water productive. This is predominately affected by the development of crevices and solution channels within the dolomite. In areas where the Galena-Platteville is the uppermost bedrock and underlies glacial drift, crevices can be well developed and the aquifer is capable of yielding moderate quantities of ground water. Where overlain by the shales of the Maquoketa, development of crevices is less pronounced and well yields are diminished (Sasman and Baker, 1966).

The Galena-Platteville aquifer is mostly intercepted in multiple aquifer wells, 384 (Tables 13 and 15); it is also open to 12 single aquifer wells (Tables 7 and 15). The well locations are shown on Plates 5 and 13. The depth and yield of single aquifer wells range from 243 to 1,150 feet and 35 to 390 gpm, respectively. Five Group I PWS facilities with six single aquifer wells withdraw over 0.159 mgd of ground water from this aquifer (Table 14A).

Maquoketa: The Maquoketa is considered a minor aquifer, although in the large areas of the State where the lithology is predominantly shale, it is considered an aquitard. Small to moderate quantities of ground water are obtained from the dolomite beds in it. These beds are best developed in the following counties: eastern De Kalb, Kane, southern Lee, southwestern Stephenson, eastern Whiteside, and most of Jo Daviess (Sasman and Baker, 1966). There are at least 100 multiple aquifer wells and also seven single aquifer wells open to the Maquoketa aquifer (Tables 11, 13, and 15). The location of the wells is shown on Plates 6 and 13. The reported well depths and yields of single aquifer wells are from 180 to 375 feet and 25 to 400 gpm, respectively (Table 11). Two Group I public water supply facilities with four wells withdraw 0.132 mgd of ground water from this aquifer (Table 14A).

Silurian-Devonian: Ground water in this carbonate aquifer occurs in joints, solution cavities, and fissures which are irregularly distributed both vertically and horizontally. These openings are interconnected on an areal basis and can extend for considerable distances. However, the upper part of the rocks tend to be more permeable than the lower part (Csallany and Walton, 1963). The Silurian-Devonian aquifer is mostly open to single aquifer wells, 438 (Table 6), and has been intercepted in 121 multiple aquifer wells (Table 15). The location of these wells is shown on Plates 7 and 13. Over 35.5 mgd of ground water is withdrawn from this aquifer through 218 wells in 122 Group I PWS facilities (Table 14A). This is the second largest withdrawal, after the Quaternary aquifer, in Group I facilities. The reported well depths vary from 20 to 1,500 feet while well yields are between 84 and 1,193 gpm (Table 6).

Table 6. Silurian-Devonian aquifer, public water supply wells

| County | Pumping facility | Population (pop./yr) | Average daily pumpage of facility (gpd/yr) | No. of wells | Well location (sec., T/R) | Well depth (feet) | Well yield (gpm) | Remarks |
|--------|---|-------------------------|---|-----------------|--------------------------------------|----------------------|---------------------|---|
| Bureau | Bureau Junction | 466 | 21,300/76 | 2 | 17,15N-10E | 305-334 | Flowing | |
| | Mineral | 286 | 25,000/76 | 2 | 8,16N-6E | 375-447 | 30 | |
| Cook | Barrington (Lake Co.) | 7,701 | * 1,170,000/73 | 2 | 1,42N-9E | 210-305 | 850 | See table 1 (Lake Co.) |
| 97 | Bartlett | 3,501 | * 938,000/78 | 2 | 34,41N-9E | 200 | 300 | See tables 1 and 13 (DuPage Co.) table 1 (Cook Co.) |
| | Burr Ridge (DuPage County) | 1,637 | 238,000/77 | 3 (1) | 18,19,38N-12E | 354-365 | Un-280 | See table 6 (DuPage Co.) |
| | Chicago Hts. | 40,900 | * 7,200,000/77 | 13 | 17,19,20,21, 28,29,30,35N- 14E | 203-484 | 500-1500 | See table 13 |
| | Citizen's Fernway Subdivision (S.E. of Orland Park) | | | (1) | 23,36N-12E | 125 | 450 | See table 13 |
| | Citizen's Waycind Park Subdivision (S.of Mt.Prospect) | | | (1) | 14,41N-11E | 236 | 125 | See table 13 |
| | Country Club Hills | 6,920 | 1,120,000/79 | 6 (3) | 3,35N-13E 10,26,34,36N- 13E | 373-450 | 350-900 | |
| | Crestwood | | | (1) | 33,37N-13E | 345 | 300 | Surface water is main supply (Chicago via Alsip) |

Table 6. Silurian-Devonian aquifer, public water supply wells (con't)

| County | Pumping facility | Population (pop./yr) | Average daily pumpage of facility (gpd/yr) | No. of wells | Well location (sec., T/R) | Well depth (feet) | Well yield (gpm) | Remarks |
|--------|--|-------------------------|---|-----------------|---------------------------------|----------------------|---------------------|-------------------------------------|
| Cook | E.Chicago Hts. | 5,000 | * 1,000,000/78 | 5 (1) | 23,35N-14E | 460-499 | 100-1000 | See table 13 |
| | Flossmoor | 8,328 | * 1,100,000/77 | 4 (3) | 2,12,35N-13E 6,35N-14E | 351-505 | 250-600 | See table 13 |
| | Glenwood | | | (2) | 5,9,35N-14E | 222-426 | 110-300 | See table 13 |
| | Hanover Park (DuPage County) | | | (1) | 36,41N-9E | 202 | 200 | See table 13 (Cook & DuPage Co.) |
| | Hoffman Estates | 22,238 | * 3,200,000/77 | 3 | 15,41N-10E | 222-252 | 350-400 | See tables 1 & 13 |
| | Homewood | 18,871 | * 2,500,000/77 | 6 (3) | 5,35N-14E 31,36,36N-14E | 250-420 | 225-650 | See table 13 |
| | Indian Head Park | 473 | 230,000/77 | 3 (1) | 19,20,38N-12E | 402-415 | 500-600 | |
| | Lemont | | | (1) | 29,37N-11E | 241 | 600 | See table 13 |
| | Matteson | 4,741 | 1,245,949/79 | 6 | 16,17,21,22, 26,35N-13E | 282-450 | 350-1100 | |
| | Mission Brook Sanitary Dist.(N. of Northbrook) | 1,300/78 | * 272,000/78 | 2 | 17,42N-12E | 237-386 | 100-275 | See table 13 |
| | Mt. Prospect | 45,228 | * 4,000,000/78 | 3 (1) | 10,11,12, 41N-11E | 193-291 | 100 | See table 13 |
| | Olympia Fields | 3,478 | 586,000/79 | 2 | 14,35N-13E | 270-445 | 500-1000 | |
| | Orland Park | 6,391 | * 1,833,000/77 | 6 | 2,4,9,10,17 36N-12E | 397-517 | 200-750 | See tables 10 & 13 |
| | Park Forest | 30,864 | 2,500,000/79 | 7 | 23,25,30,36 35N-13E | 300-402 | 600-1500 | |

Table 6. Silurian-Devonian aquifer, public water supply wells (con't)

| County | Pumping facility | Population (pop./yr) | Average daily pumpage of facility (gpd/yr) | No. of wells | Well location (sec.,T/R) | Well depth (feet) | Well yield (gpm) | Remarks |
|--------|--|-------------------------|---|-----------------|-------------------------------------|----------------------|---------------------|------------------------------|
| Cook | Prospect Meadows Subdivision (N.of Mt. Prospect) | 600/78 | 35,050/78 | 1 | 27,42N-11E | 201 | 175 | |
| | Richton Park | 2,558 | 753,000/79 | 2 | 27,33,35N-13E | 418-439 | 500-800 | |
| | Sauk Village | 7,479 | 811,000/77 | 2 | 25,35N-14E | 470-474 | 660-1000 | |
| | Schaumburg | 18,730 | * 5,306,000/78 | 7 | 12,13,20,21, 24,28,32 41N-10E | 206-390 | 250-700 | See tables 1 & 13 |
| | S. Chicago Hts. | 4,923 | * 789,000/78 | 2 (1) | 29,33,35N-14E | 250-493 | 500-700 | See table 13 |
| | Steger (Will County) | 8,104 | 840,000/77 | 1 | 33,35N-14E | 378 | 550 | See table 6 (Will County) |
| | Western Springs | | | (2) | 5,38N-12E | 313-364 | 250-500 | See table 13 |
| DuPage | Wheeling | 13,243 | * 1,800,000/78 | 3 | 10,11,12 42N-11E | 200-281 | 200-400 | See table 13 |
| | Villa Grove | 2,605 | 207,000/76 | 2 | 10,16N-9E | 627-645 | 250 | |
| DuPage | Addison | 24,482 | * 4,500,000/77 | 4 | 19,28,33, 40N-11E | 155-250 | 300-1000 | See table 13 |
| | Belmont-Highwood Public Water District | 581/79 | 58,000/79 | 2 | 12,38N-10E | 148-295 | 400-500 | |
| | Black Hawk Hts. Subdivision (near Westmont) | 1,015/77 | 66,700/77 | 1 | 10,38N-11E | 295 | 200 | |

Table 13. Public water supply wells open to multiple aquifers (con't)

| County Pumping facility | Population (pop/yr.) ----- Average daily pumpage (gpd/yr) | Location (Sec,T/R) | No. of wells | Aquifers | | | | | | | | | | Minor aquifers | | | Well yield(s) (gpm) | Well depth(s) (ft.) | Remarks | | |
|--|---|--|-----------------|----------|-------------|-------------|-------------|-------------|-------------|-------------|---------------|-------------|-------------|-------------------|-------------|--------------|---------------------------|---------------------------|-----------|--|---|
| | | | | Q | K - T | P e n | M C h | M V a | S - D | G - P | G- St P | E - P | I - G | E- Mt S | M a q | P du C | F | | | | |
| Cook | | | | | | | | | | | | | | | | | | | | | |
| Arlington Hts. | 64,884 7,500,000/77 | 9,16,41N- 11E; 6,8, 15,16,17, 19,29,30, 31,42N-11E | 12 | | | | | | | 7 | 5 | 2 | 12 | 5 | | 1 | 9 | 850-1800 | 1320-1810 | | |
| Bellwood | 22,096 3,550,000/77 | 8,9,16, 39N-12E | 5 | | | | | | | 1 | 4 | 3 | 4 | 5 | 3 | | 2 | 5 | 1200-1300 | 1460-1965 | |
| Buffalo Grove (Lake County) | * 11,799 * 1,570,000/74 | 4,5,42N- 11E | 3 | | | | | | | 3 | 3 | 3 | 3 | | | | 3 | 800-1000 | 1335-1355 | See tables 7 (Cook Co.), & 13 (Lake County) | |
| Chicago Hts. | 40,900 * 7,200,000/77 | 8,19,35N- 14E | 2 | | | | | | | 2 | 2 | 2 | 2 | | | | 2 | 2 | 1000-1250 | 1777-1800 | See table 6 |
| Citizen's Chicago Suburban Utility Co. (N.E. of Mt. Prospect) | 25,000/78 1,700,000/78 | 24,26,42N- 11E | 4 (2) | | | | | | | 4 | 4 | 4 | | | | | 4 | 1000-1200 | 1320-1468 | | |
| Citizen's Fernway Subd. (S.E. of Orland Park) | 3,000/77 * 200,000/77 | 22,36N-12E | 1 | | | | | | | 1 | 1 | 1 | 1 | | | | 1 | 1 | 700 | 1712 | See table 6 |
| Citizen's Waycind Pk. Subd. (S. of Mt. Prospect) | 7,500/78 * 700,000/78 | 14,24,41N- 11E | 2 | | | | | | | 2 | 2 | 2 | 2 | | | | 1 | 2 | 600-1000 | 1359-1382 | See table 6 |
| Des Plaines | 57,239 * 8,194,859/77 | 13,41N-11E 18,19,41N- 12E | 6 | | | | | | | 6 | 4 | 6 | 6 | 4 | 2 | 4 | 6 | 300-1100 | 1437-1845 | Surface water included | |
| Domestic Utility Co. (S. of Glenview) | 30,000/78 2,100,000/78 | 12,41N-12E | 3 | | | | | | | 3 | 3 | 3 | 3 | | | | 2 | 3 | 1150-1900 | 1402-1423 | |
| E. Chicago Hts. | 5,000 * 1,000,000/78 | 23,35N-14E | 1 | | | | | | | 1 | 1 | 1 | 1 | 1 | | | 1 | | 950 | 1858 | See table 6 |
| Elk Grove Village | 20,346 * 4,900,000/78 | 36,41N-10E 21,26,27, 32,33,35, 41N-11E | 10 | | | | | | | 10 | 10 | 10 | 10 | | | | 5 | | 600-1000 | 1342-1415 | See table 1, see table 13 (DuPage Co.) |

Table 13. Public water supply wells open to multiple aquifers (con't)

| County Pumping facility | Population (pop/yr.) ----- Average daily pumpage (gpd/yr) | Location (Sec,T/R) | No. of wells | Aquifers | | | | | | | | | | Minor aquifers | | | Well yield(s) (gpm) | Well depth(s) (ft.) | Remarks | | |
|----------------------------|---|--------------------------|---|----------|---------|-----------|-----------|-----------|-----|-----|------------|-----|-----|-------------------|-----------|------------|---------------------------|---------------------------|-----------|--|---|
| | | | | Q | K- T | P-e- n | M-C- h | M-V- a | S-D | G-P | G-St- P | E-P | I-G | E-Mt- S | M-a- q | P-du- C | F | | | | |
| Cook | Ferndale Hts. Utility Co.(N.of Palatine) | 8,500/77 921,000/77 | 1,11,12, 42N-10E | 5 | | | | | 1 | 5 | 5 | 5 | 5 | 2 | | | 5 | 350-1000 | 1350-1603 | | |
| | Flossmoor | 8,328 * 1,100,000/77 | 1,2,12, 35N-13E | 3 | | | | | | 3 | 3 | 3 | 3 | 1 | | | 2 | 390-600 | 1722-1784 | See table 6 | |
| | Glenview | 29,159 4,600,000/78 | 28,29,30, 42N-12E | 5 (1) | 2 | | | | 1 | 5 | 5 | | 4 | | | | 1 | 400-1000 | 1233-1405 | | |
| | Glenwood | 7,416 * 1,269,000/78 | 3,10,35N- 14E | 2 | | | | | | 2 | 2 | 2 | 2 | 2 | | | 2 | 1000 | 1776-1785 | See table 6 | |
| | Hanover Park (DuPage Co.) | 11,916 * 2,000,000/77 | 36,41N-9E 31,41N-10E | 3 (1) | | | | | | 3 | 3 | 3 | 3 | 1 | | | 3 | 1000-1300 | 1310-1952 | See table 6 (Cook Co.), and table 13 (DuPage Co.) | |
| | Hickory Hills | 13,176 1,240,000/78 | 2,37N-12E | 1 | | | | | | 1 | 1 | 1 | 1 | 1 | | | 1 | 1 | 420 | 1608 | Approximately 50-60% of pumpage is surface water |
| | Hoffman Estates | 22,238 * 3,200,000/77 | 5,6,7,8,9, 15,41N-10E 19,29,42N- 10E | 8 | | | | | | 7 | 6 | 6 | 8 | | | | 6 | 680-1000 | 1357-1415 | See tables 1 and 6 | |
| | Homewood | 18,871 * 2,500,000/77 | 36,36N-13E 31,36N-14E | 2 | | | | | | 2 | 2 | 2 | 2 | | | | 2 | 1100-1350 | 1735-1736 | See table 6 | |
| | LaGrange | 17,814 1,900,000/78 | 4,5,38N- 12E | 4 | | | | | | 4 | | | | | | | 4 | 700-1000 | 352-475 | | |
| | LaGrange Highlands Sanitary District | 5,560/78 586,000/78 | 17,38N-12E | 3 | | | | | | 3 | | | | | | | 3 | 400-600 | 411-420 | | |
| | Lemont | 5,080 * 646,000/78 | 29,37N-11E | 1 | | | | | | 1 | 1 | 1 | 1 | 1 | | | 1 | 700 | 1723 | See table 6 | |
| | Lynnwood | 1,042 200,000/76 | 7,35N-15E | 1 | | | | | | 1 | 1 | 1 | 1 | 1 | | | 1 | 1000 | 1827 | | |
| | Lyons | 11,124 * 1,600,000/77 | 1,38N-12E | 1 | | | | | | 1 | 1 | 1 | 1 | | | | 1 | 1000 | 1750 | Approximately 50% of pumpage is surface water | |
| | Mission Brook San- itary Dist.(W.of Northbrook) | 1,300/78 * 272,000/78 | 18,42N-12E | 2 | | | | | | 2 | 2 | | 2 | | | | 2 | 315-600 | 1399-1400 | See table 6 | |

Table 13. Public water supply wells open to multiple aquifers (con't)

| County Pumping facility | Population (pop/yr.) ----- Average daily pumpage (gpd/yr) | Location (Sec,T/R) | No. of wells | Aquifers | | | | | | | | | | Minor aquifers | | | Well yield(s) (gpm) | Well depth(s) (ft.) | Remarks | |
|----------------------------|---|--------------------------------------|-----------------|----------|-------------|-------------|-------------|-------------|-------------|-------------|-----------|-------------|-------------|-------------------|-------------|--------------|---------------------------|---------------------------|-----------|---|
| | | | | Q | K - T | P e n | M C h | M V a | S - D | G - P | G-St P | E - P | I - G | E-Mt S | M a q | P du C | F | | | |
| Cook | | | | | | | | | | | | | | | | | | | | |
| Mt. Prospect | 45,228 * 4,000,000/78 | 10,11,23, 27,33,34, 35,41N-11E | 10 | | | | | | | 7 | 9 | 9 | 10 | 9 | | 5 | 9 | 500-1600 | 1310-1961 | See table 6 |
| Orland Park | 6,391 * 1,833,000/77 | 13,36N-12E | 1 | | | | | | | 1 | 1 | 1 | 1 | | | 1 | 1 | 900 | 1809 | See tables 6 and 10 |
| Palatine | 26,050 * 4,098,000/77 | 9,14,15, 22,24,28, 42N-10E | 7 | 1 | | | | | | 2 | 3 | 3 | | 5 | 2 | 1 | 4 | 250-1200 | 162-1960 | See table 1. |
| Riverside | 10,432 * 1,000,000/77 | 25,36,39N- 12E | 2 | | | | | | | 2 | 2 | 1 | 2 | 2 | | 1 | | 1200-1325 | 1980-2049 | Approximately 5% of pumpage is surface water |
| Rolling Meadows | 19,178 2,200,000/78 | 7,8,25,26, 34,36,42N- 10E | 7 | | | | | | | 6 | 6 | 1 | 7 | 2 | | 1 | 1 | 500-1000 | 1528-1602 | |
| Schaumburg | 18,730 * 5,306,000/78 | 10,14,18 34,41N-10E | 4 | | | | | | | 1 | 4 | 4 | | 3 | | 4 | 2 | 900-1400 | 1350-1615 | See tables 1 and 6 |
| S. Chicago Hts. | | 29,35N-14E | (1) | | | | | | | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 225 | 2756 | See table 6 |
| Streamwood | 18,176 * 2,100,000/78 | 23,41N-9E | 1 | | | | | | | 1 | 1 | | 1 | | | 1 | 1 | 500 | 1410 | See table 1 |
| Thornton | 3,714 474,000/79 | 34,36N-14E | 2 | | | | | | | 2 | 2 | 2 | 2 | | | 2 | 2 | 400-600 | 1724-1783 | |
| Western Springs | 13,029 * 1,398,000/78 | 5,6,38N- 12E | 2 | | | | | | | 2 | 2 | | 1 | 1 | | | 2 | 1000-1260 | 1256-1913 | See table 6 |
| Wheeling | 13,243 * 1,800,000/78 | 3,11,23, 42N-11E | 3 | | | | | | | 3 | 3 | | 3 | | | 3 | | 800-1300 | 1350-1370 | See table 6 |
| DeKalb | | | | | | | | | | | | | | | | | | | | |
| DeKalb | 32,949 3,918,000/76 | 22,23,40N- 4E | 9 | | | | | | | 2 | 9 | 5 | 9 | | 3 | | 8 | 495-1331 | 1200-1330 | |
| Genoa | 3,210/75 428,500/77 | 19,42N-5E | 3 | | | | | | | 3 | 3 | | | | | | | 500-1000 | 730-770 | |
| Hinckley | 1,053 115,400/77 | 15,38N-5E | 2 | | | | | | | 2 | 2 | | | | | | | 300 | 605-708 | |

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STATE OF ILLINOIS
DEPARTMENT OF REGISTRATION AND EDUCATION



SUMMARY
OF THE GEOLOGY
OF THE CHICAGO AREA

H. B. Willman

CIRCULAR 460

1971

ILLINOIS STATE GEOLOGICAL SURVEY
URBANA, ILLINOIS 61801

John C. Frye, Chief

Ground Water

The water supplies of the Chicago area come largely from Lake Michigan and from wells that tap ground-water resources. The smaller lakes in the area are a source of water for some communities. Artificial lakes provide limited quantities of water for local use. The rivers and streams supply little water suitable for uses other than cooling in power plants. A limited amount of water is diverted from Lake Michigan to maintain flow through the Chicago Sanitary and Ship Canal.

The ground-water resources are in four major water-yielding units, called aquifers: (1) sand and gravel beds in the glacial drift; (2) the Shallow Dolomite Aquifer, mainly the Silurian dolomite; (3) the Cambrian-Ordovician Aquifer, in which the Iron-
ton-Galesville and Glenwood-St. Peter Sandstones are the most productive units; and
(4) the Mt. Simon Aquifer, which consists of the Mt. Simon Sandstone and the basal
sandstone of the Eau Claire Formation (Suter et al., 1959).

The shallow aquifers are connected hydrologically and are recharged directly by seepage from precipitation. They are separated by the relatively impervious Maquoketa Group Shale from the Cambrian-Ordovician Aquifer. The Cambrian-Ordovician Aquifer rises westward and it is recharged at the surface or through glacial deposits west of the outcrop area of the Maquoketa Group Shale along the western side of the Chicago area (fig. 9). The Cambrian-Ordovician Aquifer is separated from the Mt. Simon Aquifer by the shaly and silty beds of the Eau Claire Formation that prevent flow between the aquifers. The Mt. Simon Aquifer has a higher artesian pressure than the other aquifers, but the water quality in the eastern part of the area is not acceptable for many uses. It is recharged largely from the outcrop region of Cambrian rocks in central southern Wisconsin (fig. 1).

The Cambrian-Ordovician Aquifer has been the most highly developed bedrock aquifer. Artesian pressure in the aquifer caused the first deep well drilled in Chicago to flow with a head 80 feet above the surface, but by 1959 the water surface had declined as much as 660 feet in a cone-shaped region around the area of heaviest pumping. On the other hand, about 60 percent of the total pumpage in the area is from the two shallow aquifers, and in them there is no widespread decline in water levels.

The geology, hydrology, and resources of ground water in the Chicago area have been discussed in detail by Suter et al. (1959) and Zeizel et al. (1962).

ENGINEERING GEOLOGY

The design of buildings, roads, dams, bridges, and subways — in fact, of all kinds of structures — is dependent on the properties and variations of the geological formations on or in which they are built. Specific conditions at each site must be evaluated for the particular structure being planned. The engineering geologist may employ test drilling, rock core and soil sample studies, and in some instances geophysical logging and laboratory testing, to evaluate the geologic conditions that must be considered in design and construction.

Major engineering problems in the Chicago area have included the design of foundations for skyscrapers, most of which require excavation through 50 feet or more of glacial deposits (largely till but including water-bearing sands and boulder accumulations) to an uneven bedrock surface. Large buildings in areas of deeper drift are placed on piling, generally driven to bedrock. Glacial till provides adequate foundations for smaller buildings and most houses.

Construction of the Chicago subway involved many problems concerned with variations in the properties of the glacial drift (Peck and Reed, 1954). Similar problems are involved in highway and bridge design and in the construction of dams (W. C. Smith, 1968, 1969). Study of the variations in the glacial drift has been important in constructing foundations for the 200 BEV accelerator at the Na-



ecology and environment, inc.
CHICAGO, ILLINOIS

TELEPHONE LOG

| | | |
|---------------------------------|--|-------------------|
| CONTACT Mario | COMPANY OR AGENCY Wood Dale H2O Dept. | POSITION Sept. |
| CONTACT ADDRESS Wood Dale IL | CONTACT PHONE NUMBER 766-5132 | |
| E&E EMPLOYEE T. Dickson | DATE 8/8/89 | TIME 11:00 |
| PROJECT NUMBER FIL 0604 SA | SITE NAME AND LOCATION Film Recovery | |
| DISCUSSION | | |

I asked which of the Wood Dale municipal wells were shallow and which were deep. Mario told me 1, 2, 3 & 6 were shallow all around 195 screened in Silurian Limestone. He said 5, 7 are deep screened in Lower Ord. + Cambrian Sandstones. \approx 1300 ft. The water from all wells is blended and serves \approx 11,300 persons. He told me there are \approx 450 homes in Wood Dale using private well presumably screened in shallow aquifers. We verified the location of wells as to where they were located on my 4-mile rod. maps

SIGNATURE

PAGE 1 OF 1

DATE Sept 25, 1986

TDD # R5-8410-1E

OR IL-378

TIME 3:30pm

PROJECT NO.:

SITE Northwest Millwork / Plaza Industries

CONTACT Pete Wolter

PHONE (312) 439-3900

Foreman, Elk Grove

Village Water Dept

SUBJECT I contacted Mr Pete Wolter, Foreman, Water Dept, Elk Grove Village, IL, concerning the source of water for Elk Grove Village. He informed me that since early fall of 1985, Elk Grove Village has been supplied by Lake Michigan water for 100% of their water. I inquired as to whether they kept any wells on standby. He replied that they did keep 4-5 wells on standby in the event of an emergency such as a shut down of Lake Michigan water. He stated that the back up wells were not used in periods of peak demand since the volume of Lake Michigan water supplied met all of the village needs. The wells kept on standby are test pumped to waste on a monthly basis. No emergencies have occurred in the past year requiring the use of the stand-by wells.

Roné the Map
Date 9/25/86

PHONE CONVERSATION

DATE August 5, 1986

TDD # R058605-05

TIME 9:00 pm

SITE Commercial Machine Works

CONTACT Pete Walter

PHONE (312) 439-3900

Elk Grove Village

water Dept.

SUBJECT Water Distribution

Elk Grove Village obtains drinking water solely from Lake Michigan. They do not mix lake water with groundwater.

Pete An Gennett

DATE August 5, 1986

PHONE CONVERSATION

DATE August 5, 1985

TOD # P05-8605-05

TIME 9:11 AM

SITE Commercial Machine Works

CONTACT Julie Gutierrez
Mt. Prospect
Water Dept.

PHONE (312) 392-6000

SUBJECT Water Distribution

The Village of Mt. Prospect obtains Lake Michigan water for Drinking Water. They do not blend groundwater with the lake water.

Notes & Results

DATE August 5, 1985

PHONE CONVERSATION

DATE August 5, 1986

TDD # 805 81605-05

TIME 9:20 AM

SITE Commercial Machine Works

CONTACT Pat Speciale
Des Plaines Dept. of
Public Works

PHONE (312) 391-5490

SUBJECT Water Distribution

Des Plaines obtains drinking water solely from Lake Michigan. They do not blend groundwater with lake water.

Butterfield Growth

DATE August 5, 1986

PHONE CONVERSATION

DATE 8/5/86

TDD # R05-8605-05

TIME 9:05 Am

SITE Commercial Machine Works

CONTACT Don Renner
Arlington Heights
Water Dept.

PHONE 577-5600

SUBJECT Water Distribution

Arlington Heights obtains drinking water solely
from Lake Michigan. They do not blend
ground water with lake water

Kurt A. Jaegel

DATE 8/5/86

TIME 11:30 AM

SITE John Sexton Landfill

CONTRACT Carol Ostrowski

FED ID # (312) 543 - 4100

Addison Dept of Public
Works.

SURVEYOR Addison has 8 drinking water wells:

#1 - 105 E Lake

#4 - West gate + commercial

#6, 7, 8 - 1011 W Fullerton

#9 - 300 N Swift

10, 11 - Lombard + Golden Gate

P.W. May



ecology and environment, inc.
CHICAGO, ILLINOIS

TELEPHONE LOG

REFERENCE

CONTACT

Bob McKoneck

COMPANY or AGENCY

Des Plaines Curve Center

POSITION

ACTING DIRECTOR
ENGINEERING

CONTACT ADDRESS

CONTACT PHONE NUMBER

312 - 391-5375

E&E EMPLOYEE

DATE

TIME

KEVIN Lyons

5-13-87

1000

PROJECT NUMBER

IL 0465

SITE NAME and LOCATION

ELK Grove Valley

Bisco Co. 630 Bonnie La Illinois

DISCUSSION

Bob said there are 10-12 private wells not hooked up to Lake Michigan water for drinking presently. They are approximately 150' - 200' deep. They are located west of Wolf Road and South of Algonquin Rd.

SIGNATURE

Kevin W. Lyons

PAGE 1 OF 1



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CHICAGO, ILLINOIS

TELEPHONE LOG

REFERENCE

| CONTACT | COMPANY or AGENCY | POSITION |
|-----------------------|---|------------------------------------|
| JERRY McINTOSH | Mr. Prospect PUBLIC WORKS | Water & Sewer Superintendent |
| CONTACT ADDRESS | | CONTACT PHONE NUMBER |
| 115 Pine 1st Prospect | | 312-870-5640 |
| E&E EMPLOYEE | DATE | TIME |
| KEVIN Lyons | 5-13-87 | 1500 |
| PROJECT NUMBER | SITE NAME and LOCATION | |
| IL 0465 | Bisco Co. 630 Bonnie La. Elk Grove Village, Ill. | |

DISCUSSION

Jerry returned my call and said 20-30 private wells currently exist. They are approximately 150-190 feet deep and probably draw from the limestone. The approximate location is the 800-900 blocks on S. Elm. The area is 1-2 blocks North of Golf Road and approximately 5 blocks East of Elmhurst Road.

SIGNATURE

PAGE 1 OF 1



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TELEPHONE LOG

REFERENCE

CONTACT

Bob Sosman

COMPANY or AGENCY

I.S.W.S.

POSITION

CONTACT ADDRESS

101 N. Island Ave. Batavia IL 60510

CONTACT PHONE NUMBER

312-879-6466

E&E EMPLOYEE

Kevin Lyons

DATE

5-7-87

TIME

1300

PROJECT NUMBER

IL 0465

SITE NAME and LOCATION

Bisco Co. 630 Bonnie La. Elk Grove Village

DISCUSSION

Bob stated Des Plaines receives drinking water from Lake Michigan which is lined from Chicago. Private wells are less than 200 feet deep on the average in the area.

SIGNATURE

Kevin W. Lyons

PAGE 1 OF 1



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CHICAGO, ILLINOIS

TELEPHONE LOG

REFERENCE

| | | |
|---|--|---------------------------------|
| CONTACT <i>Mrs. Werner</i> | COMPANY or AGENCY <i>Elk Grove Public Works</i> | POSITION <i>Senior Clerk</i> |
| CONTACT ADDRESS | CONTACT PHONE NUMBER <i>312-499-3900</i> | |
| E&E EMPLOYEE <i>Kevin Lyons</i> | DATE <i>5-7-87</i> | TIME <i>1310</i> |
| PROJECT NUMBER <i>IL 0465</i> | SITE NAME and LOCATION <i>Bisco Co. 630 Bonnie La Elk Grove Village</i> | |
| DISCUSSION <p><i>Mrs. Werner indicated that Elk Grove Village receives drinking water solely from Lake Michigan. Drinking water has been leased from Chicago for approximately 1.5 years. Private wells may be utilized as a back-up drinking water source. Presently, private wells are not in use. She also (Mrs. Werner) directed myself to telephone Pete Walter 312-439-3900 ext 241 to answer further questions.</i></p> | | |
| SIGNATURE <i>Kevin W. Lyons</i> | PAGE <u>1</u> OF <u>1</u> | |

DATE 13 August 1985

TDD # R5 8410-01B

IL 0378

TIME 10:55 AM

SITE Northwest Millwork / Plaza Industries, Des Plaines, IL

CONTACT Mr. Vito Corriero

PHONE (312) 825 - 1104

Supt. of Water Dept.

REFERENCE 10

Rosemont, IL

SITE NAME Plaza Industries

SITE ID ILD930902076

SUBJECT

I contacted Mr. Vito Corriero, Superintendent of Water Department, Rosemont, IL, concerning the source of water for Rosemont. Since 1964, Rosemont has been supplied totally by Chicago Lake Michigan water from the City of Chicago. & Rosemont has an emergency or connection with Des Plaines (used once in ten years). Although the population of Rosemont is officially 4137 (1980 census), the population surges to 300,000 to 400,000 during the working days 8-5pm due to the large office complexes located in Rosemont.

Mr. Corriero thought that there may be 1 or 2 private wells in Rosemont used solely for lawn sprinkling, but he is not sure.

Timothy E. McDonald
Date: 13 Aug 85



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CHICAGO, ILLINOIS

TELEPHONE LOG

REFERENCE

CONTACT

PETE WALTER

COMPANY or AGENCY

ELK GROVE VILLAGE PUBLIC
WORKS

POSITION
WATER
FOREMAN

CONTACT ADDRESS

CONTACT PHONE NUMBER

312 - 439 - 3900 # 241

E&E EMPLOYEE

KEVIN LYONS

DATE

5 - 7 - 87

TIME

1515

PROJECT NUMBER

IL 0465

SITE NAME and LOCATION

ILL.

BISCO CO. 630 Bonnie La. ELK GROVE VILLAGE

DISCUSSION

Pete Walter mentioned that the only source of drinking water for Elk Grove Village came from Lake Michigan. No private wells are utilized in Elk Grove Village. He said Salt Creek in the area is not currently used as a recreational resource or used for irrigation.

SIGNATURE

Kevin W. Lyons

PAGE 1 OF 1



ecology and environment, inc.
CHICAGO, ILLINOIS

TELEPHONE LOG

REFERENCE

| CONTACT | COMPANY OR AGENCY | POSITION |
|---------------------------------|---|------------------|
| Mike Schweizer | Town of Bensenville | WATER SUPERVISOR |
| 21 N. York Rd, Bensenville, IL. | DUPAGE CO. | 312/766-0058 |
| E&E EMPLOYEE | DATE | TIME |
| T. Wolff | 1/20/87 | 1102 |
| PROJECT NUMBER | SITE NAME AND LOCATION | |
| IL0503 | Williams Pipeline Co., Franklin Park, IL. | |

DISCUSSION

I ASKED MR. SCHWEIZER IF BENSENVILLE WAS STILL ON MUNICIPAL WELLS. HE TOLD ME THAT THEY WERE OPERATING ON 5 WELLS. TWO WELLS ARE DRAWN FROM 1400' AND THREE FROM 1900'. THESE FIVE WELLS SERVE THE POPULATION OF 16,700, AND ONLY A SCATTERED FEW ARE STILL ON PRIVATE WELLS. A WATER DISTRIBUTION MAP AND WELL STATISTICS WILL BE MAILED TO ME TODAY.

SIGNATURE

PAGE 1 OF 1

DATE Sept 25, 1986

TOD # R5-8410-1E

OR 2-378

PROJECT NO.: _____

TIME 3:35 pm

SITE Northwest Millwork Plaza Industries

CONTACT Jerry MacIntosh PHONE (312) 392-6000

PHONE (312) 392-6000

Water Superintendent

Mount Prospect, IL

SUBJECT I contacted Mr. Jerry MacIntosh, Water Superintendent, Mt. Prospect, concerning the source of water for Mt. Prospect. He informed me that Mt. Prospect receives 100% of their water from Lake Michigan and that none of their old wells were used for back up purposes.

Reneé H. May

Date 9/25/86



Village of Bensenville

P.O. Box 330, 700 West Irving Park Road, Bensenville, Illinois 60106
(312) 766-8200

February 24, 1988

Mr. John Nording
Ecology & Environment
111 W. Jackson
Chicago, Il. 60604

Dear Mr. Nording,

Attached are copies of the various Bensenville water well reports that you have requested. I hope this material provides you with the necessary information you need to continue your current project. Should you need additional assistance or discussion in the area of water supply and distribution, please let me know.

Sincerely,

Charles D. Foulkes
Charles D. Foulkes
Water Supervisor

CF/mg